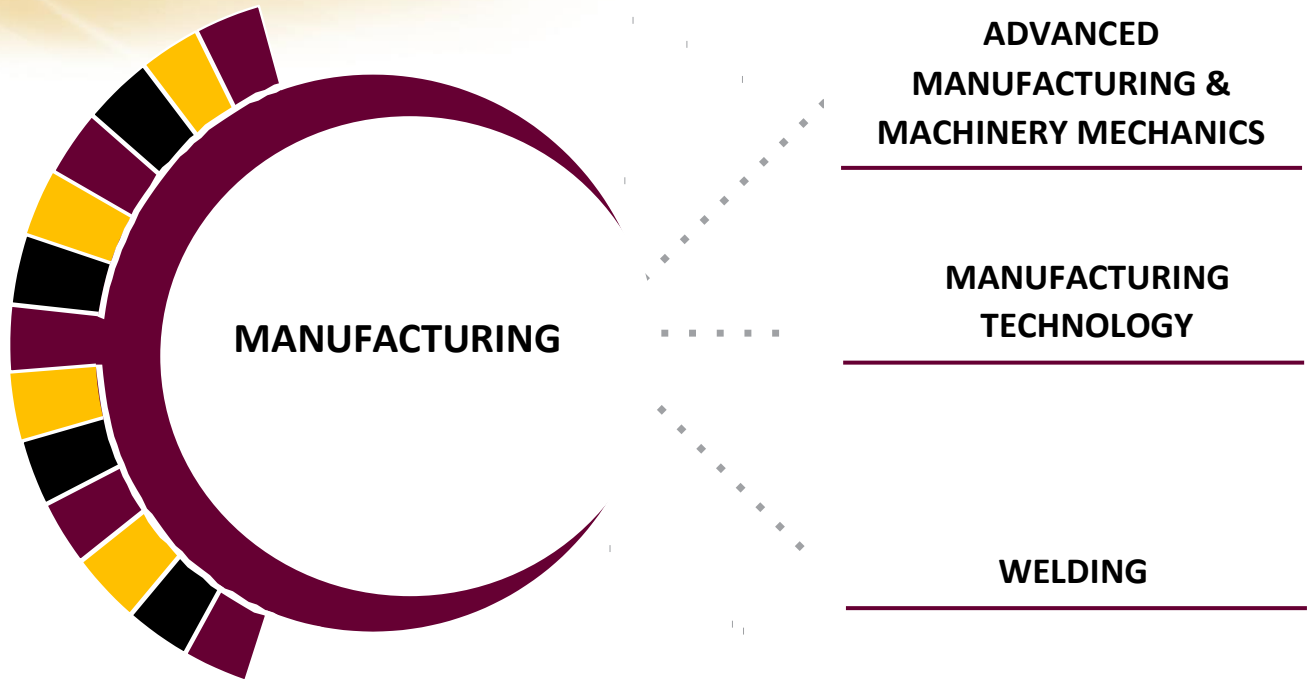


# Business & Industry Endorsement

## CAREER CLUSTER

## PROGRAMS OF STUDY



Students completing two or more courses for two or more credits within a program of study earn concentrator status for Perkins V federal accountability reporting.

Students finishing three or more courses for four or more credits with one course from level 3 or 4 within a program of study earn completer status for Perkins V federal accountability reporting.





**COURSES**

- LEVEL 1** Principles of Applied Engineering

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- LEVEL 2** Robotics I

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- LEVEL 3** Robotics II

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- LEVEL 4** Practicum in Manufacturing

**POSTSECONDARY OPTIONS**

HIGH SCHOOL/ *INDUSTRY CERTIFICATION	CERTIFICATE/ LICENSE	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE	OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
*NIMS Machining Level 1-Materials, Measurement and Safety	Engineer, Professional	Electro-Mechanical Engineering/Technology	Electrical Engineering		Electro Mechanical Assemblers	\$30,160	951	9%
*NIMS Industrial Technology Maintenance - Maintenance Operations	*NIMS Industrial Technology Maintenance – Basic Mechanical Systems	Instrumental Technology Technician	Industrial Engineering		Electro Mechanical Technicians	\$56,555	127	9%
FANUC Robot, Operator 1	Certified Quality Technician	Industrial Mechanics & Maintenance Technology	Mechanical Engineering		Industrial Machinery Mechanics	\$49,816	3,788	27%
Mastercam Associate Level Certification	Mechatronics Programmable Logic Controllers	Robotics Technology/Technician	Engineering, General					
*Certification offered at DISD. Additional industry based certification information is available from the TEA CTE website.					<p align="center"><b>WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES</b></p> <p><b>Exploration Activities:</b> SkillsUSA, STEM/Robotics Competitions</p> <p><b>Work Based Learning Activities:</b> Job shadow a mechanical technician, Apprenticeship at a local industry</p>			
For more information on postsecondary options for this program of study, visit TXCTE.org, your counselor, or the CTE department at DISD.								

The Advanced Manufacturing and Machinery Mechanics program of study focuses on the assembly, operation, maintenance, and repair of electromechanical equipment or devices. Students may work in a variety of mechanical fields, gaining knowledge and experience in robotics, refinery and pipeline systems, deep ocean exploration, or hazardous waste removal. CTE concentrators may work in a variety of fields of engineering.



The Manufacturing Career Cluster® focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.

Successful completion of the Advanced Manufacturing and Machinery Mechanics program of study will fulfill requirements of the Business and Industry Endorsement – Approved Statewide Programs of Study – September 2019.



# COURSE INFORMATION

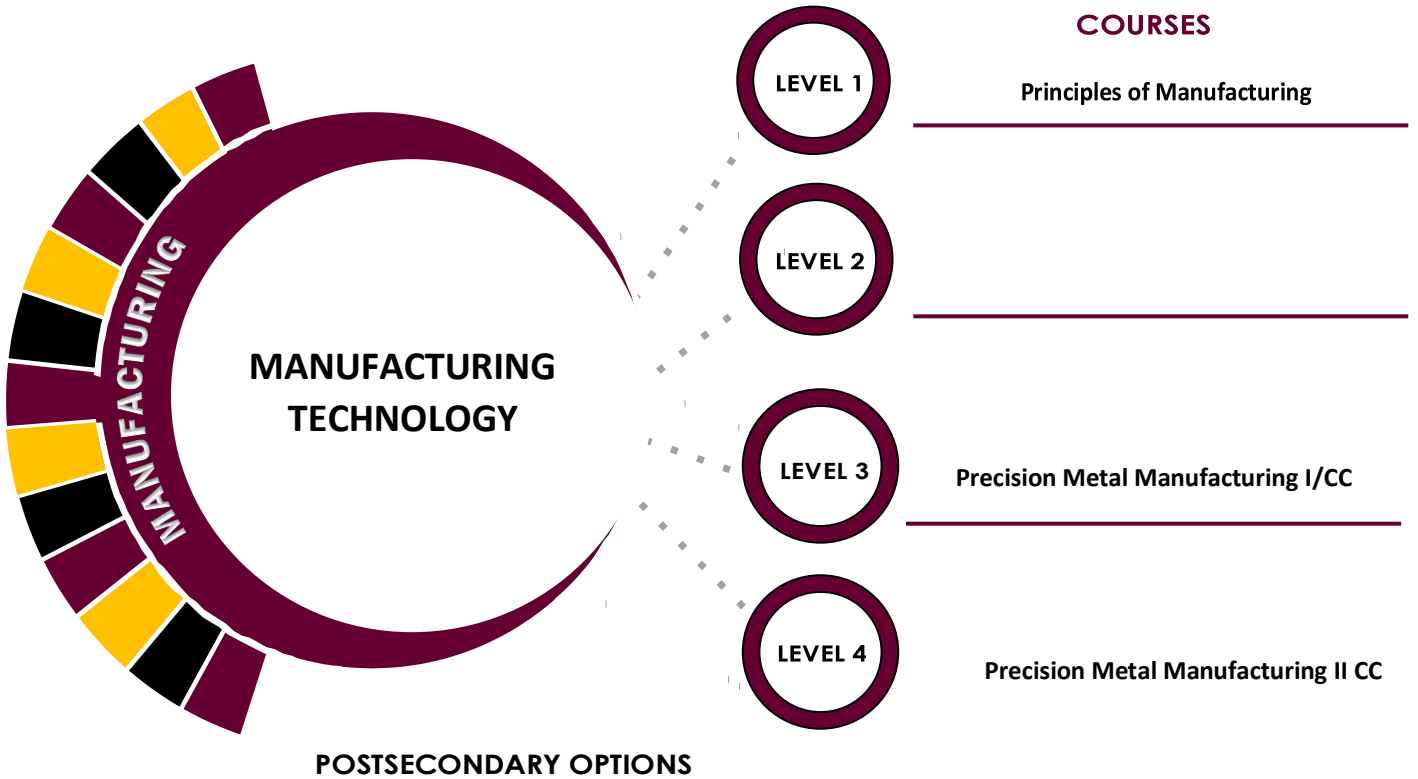
COURSE NAME	SERVICE ID	PREREQUISITES (PREQ)	GRADE
Principles of Applied Engineering	13036200 (1 credit)	None	9-10
Robotics I	13037000 (1 credit)	None	9-10
Robotics II	13037050 (1 credit)	<b>PREQ:</b> Robotics I	10-12
Practicum in Manufacturing	13033000 (2 credits)	None	12

FOR ADDITIONAL INFORMATION ON THE MANUFACTURING CAREER CLUSTER, PLEASE CONTACT:

Amanda Brantley/Amanda.Brantley@tea.texas.gov

<https://tea.texas.gov/cte>

<http://www.donnaisd.net/Community/Graduation-Plans>



HIGH SCHOOL/ *INDUSTRY CERTIFICATION	CERTIFICATE/ LICENSE	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE	OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
*NIMS Machining Level 1-Materials, Measurement and Safety	NIMS Industrial Technology Maintenance - Basic Mechanical Systems		Environmental Health		Mechanical Engineering Technicians	\$57,117	453	9%
*NIMS Machining Level 1- CNC Milling Operations	Certified Environmental, Safety, and Health Trainer	Machine Shop Technology/ Assistant	Biomedical Technology/ Technician	Occupational Health and Industrial Hygiene	CNC Machine Operators	\$39,250	1,319	12%
*NIMS Machining Level 1- Drill Press Skills	Fast Start Precision Manufacturing	Precision Manufacturing Technology	Mechanical Engineering Manufacturing Engineering		Aerospace Engineering and Operations Technicians	\$60,757	114	9%
*STC Precision Manufacturing Technology Certificate	Mechatronics Technology Specialist		Operations Management and Supervision		Electrical Engineering	\$60,382	1,439	9%
*Certification offered at DISD. Additional industry based certification information is available from the TEA CTE website. For more information on postsecondary options for this program of study, visit TXCTE.org, your counselor, or the CTE department at DISD.					Industrial Engineering	\$61,672	326	9%
					<b>WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES</b>			
					<b>Exploration Activities:</b> SkillsUSA	<b>Work Based Learning Activities:</b> Job shadow a machinist  Apprenticeship at a local industry		

The Manufacturing Technology program of study focuses on the development and use of automatic and computer-controlled machines, tools, and robots that perform work on metal or plastic. Students will learn how to set up and operate a variety of machine tools to produce precision parts and instruments. Students will also learn how to modify parts to make or repair machine tools or maintain individual machines, and how to use hand-welding or flame-cutting equipment.

The Manufacturing Career Cluster® focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.

Successful completion of the Manufacturing Technology program of study will fulfill requirements of the Business and Industry Endorsement – Approved Statewide Programs of Study – September 2019.



# COURSE INFORMATION

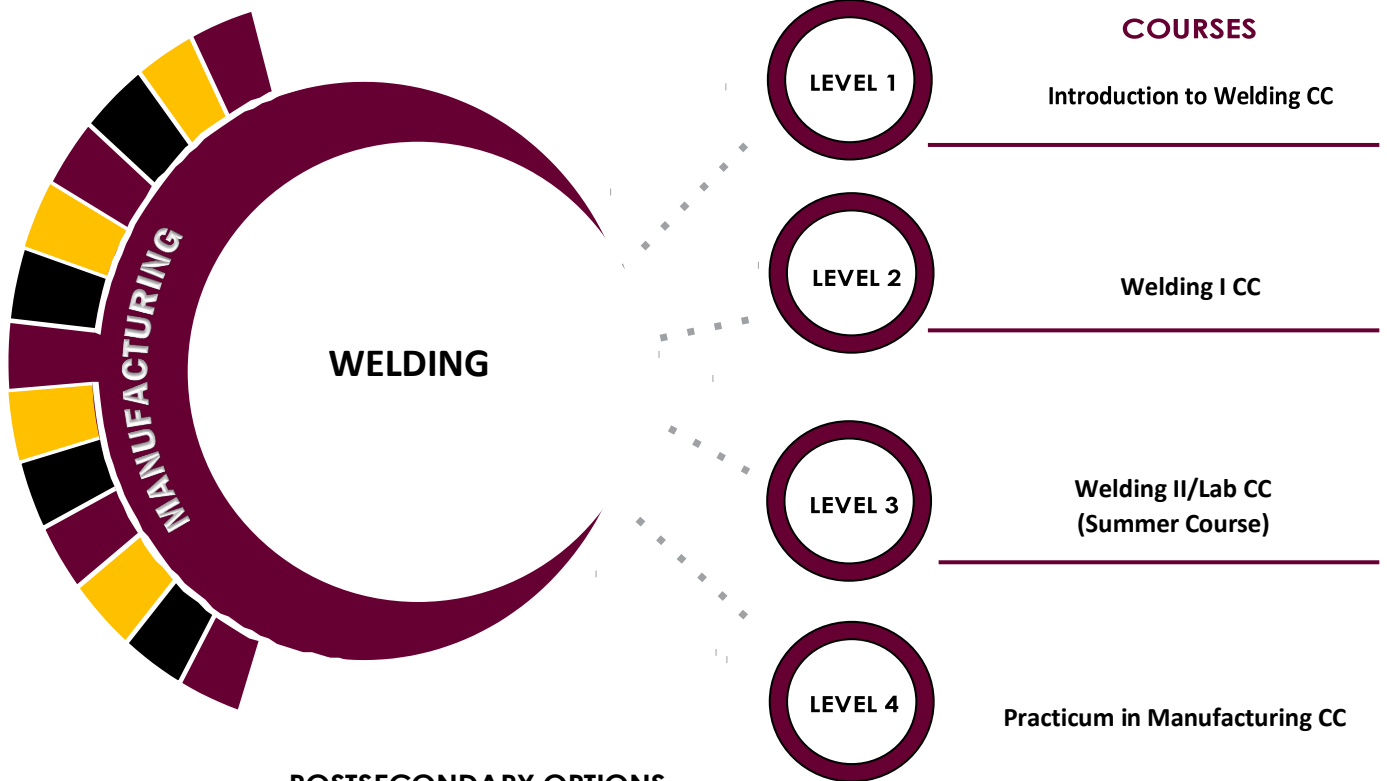
COURSE NAME	SERVICE ID	PREREQUISITES (PREQ)	GRADE
Principles of Manufacturing	13032200 (1 credit)	None	9-12
Precision Metal Manufacturing I/CC	13032500 (2 credits)	None	11
Precision Metal Manufacturing II CC	13032600 (2 credits)	<b>PREQ:</b> Precision Metal Manufacturing I CC	12

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**POSTSECONDARY OPTIONS**

HIGH SCHOOL/ *INDUSTRY CERTIFICATION	CERTIFICATE/ LICENSE	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE	OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
*NIMS Machining Level 1-Materials, Measurement and Safety	Certified Welder/ Welder Inspector	Welding Technology/ Welder	Welding Engineering Technology/Technician		Welders, Cutters, Solderers, and Brazers	\$41,350	6,171	9%
*AWS Certified Welder, D1.1	ASW SENSE Level 1	Machine Shop Technology/ Assistant	Biomedical Technology/ Technician	Occupational Health and Industrial Hygiene	Welding, Soldering and Brazing Machine Setters, Operators and Tenders	\$40,040	280	9%
*AWS Certified Welder, D9.1	Certified Welding Engineering	Operations Management and Supervision			Production and Operating Technicians	\$62,171	5,094	9%
*STC Structural Welding Certificate	Combination Welding Certificate	Occupational Safety and Health Technology/ Technician	Environmental Health		<b>WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES</b>			
*Certification offered at DISD. Additional industry based certification information is available from the TEA CTE website.					<b>Exploration Activities:</b> SkillsUSA	<b>Work Based Learning Activities:</b> Job shadow a welder Apprenticeship at a local industry		
For more information on postsecondary options for this program of study, visit TXCTE.org, your counselor, or the CTE department at DISD.								

The Welding program of study focuses on the development and use of automatic and computer-controlled machines, tools, and robots that perform work on metal or plastic. Students will learn how to modify parts to make or repair machine tools or maintain individual machines, and how to use hand-welding or flame-cutting equipment.



The Manufacturing Career Cluster® focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.

Successful completion of the Welding program of study will fulfill requirements of the Business and Industry Endorsement – Approved Statewide Programs of Study – September 2019.



# COURSE INFORMATION

COURSE NAME	SERVICE ID	PREREQUISITES (PREQ) COREQUISITES (CREQ)	GRADE
Introduction to Welding CC	13032250 (1 credit)	None	11
Welding I CC	13032300 (2 credits)	<b>CREQ:</b> Introduction to Welding CC	11
Welding II CC	13032400 (2 credits)	<b>PREQ:</b> Introduction to Welding CC and Welding I CC	11
Welding II CC/Lab	13032410 (3 credits)		
Practicum in Manufacturing CC	13033000 (2 credits)	<b>PREQ:</b> Introduction to Welding CC, Welding I CC, and Welding II CC/Lab	12

FOR ADDITIONAL INFORMATION ON THE MANUFACTURING CAREER CLUSTER, PLEASE CONTACT:

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